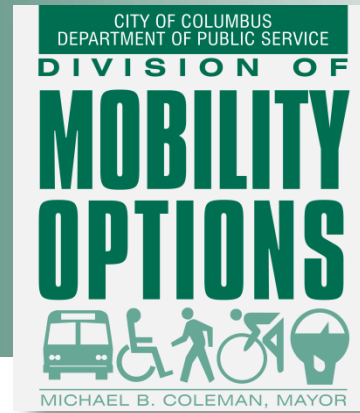


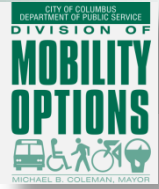
Division of Mobility Options
Department of Public Service
City of Columbus



Linden Area Traffic Management Plan

July 22, 2010

Agenda



- Introductions
- History
- Overview
- Maize Road & Norris Drive
- Results
- Monitoring
- Next Steps

- Linden Area Traffic Management Plan (LATMP) is a comprehensive traffic management plan, first of its kind in Columbus
- Purpose:
 - Calm traffic
 - Improve pedestrian safety
 - Cover Linden planning area arterial & local streets
- Plan assembled through extensive community involvement in 2003-2004
- Endorsed by North and South Linden Area Commissions

Outreach

- Area Residents
- Neighborhood and Civic Associations
- Schools
- Businesses
- Faith-based Organizations
- Economic Development Corporations
- Community Groups
- Disabled Community
- Ohio State Fairgrounds
- Restaurants
- Parks and Recreation Departments
- State Legislators
- Mayor's Office
- City Council
- Public Agencies
- Libraries
- COTA
- News Media
- Design Centers
- Emergency Services
- Columbus Area Pedestrian Safety Committee
- Organizations

Public Involvement

- Nine public meetings and workshops between 2003 and 2009
- Flyers posted around the area
- Press releases
- Multiple news articles published in the Columbus Dispatch, Greater Linden News, EZ News, MORPC newsletter

Data Collection

- Traffic volume
- Traffic speeds
- Pedestrian crashes
- Public input/traffic complaints

Development of a Tool Kit

- Medians – narrows streets
- Gateways – provide character, limits cut-through traffic & reduces speeds
- Chicanes – introduce curvature to road to reduce speeds
- Visual Road Diet – narrow roadway with marked travel lanes

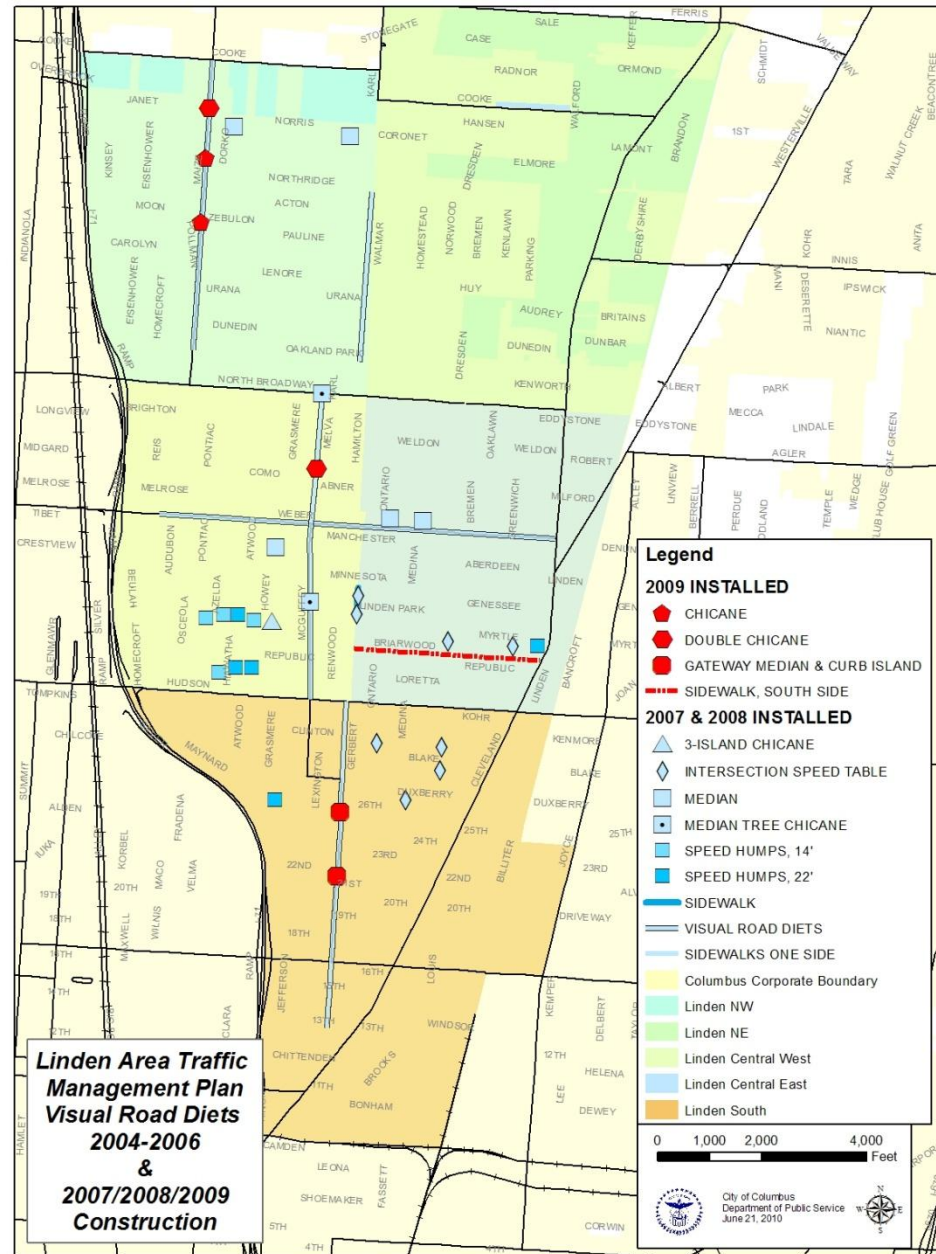
Design of Tool kit

- Engineering Consultant/Design Criteria
- Posted speed limit for passenger vehicle
- Through movements for large vehicles
- Standard signage & markings
- Raised pavement markings
- Field tested preliminary designs with fire ladder & engine trucks

Overview

Implementing the Plan

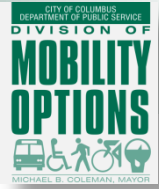
- 5 Visual Road Diets
- 3 sidewalk locations, over 3000 ft
- 8 Intersection Speed Tables
- 9 Speed Humps
- 5 Medians
- 2 Median Tree Chicanes
- 1 Three-island Chicane
- 2 Medians w/Curb Extensions
- 2 Chicanes
- 2 Double Chicanes



Implementation 2005 – 2009

- 2005 – 2006 Visual Road Diets (lane striping)
 - 2007 speed humps/speed tables (16 items)
 - 2008 medians, chicanes (11 items)
 - 2009 medians, chicanes (7 items)
-
- **Total for Planning, Design & Construction: \$1,522,554**

Maize/Norris



- Norris Drive – 2008
 - medians approved 12/20/2006 by North Linden Area Commission
- Maize Road - 2009
 - Priority street selected by North Linden Area Commission (Meetings on 6/6/2007, 6/23/2007, 12/12/2007)

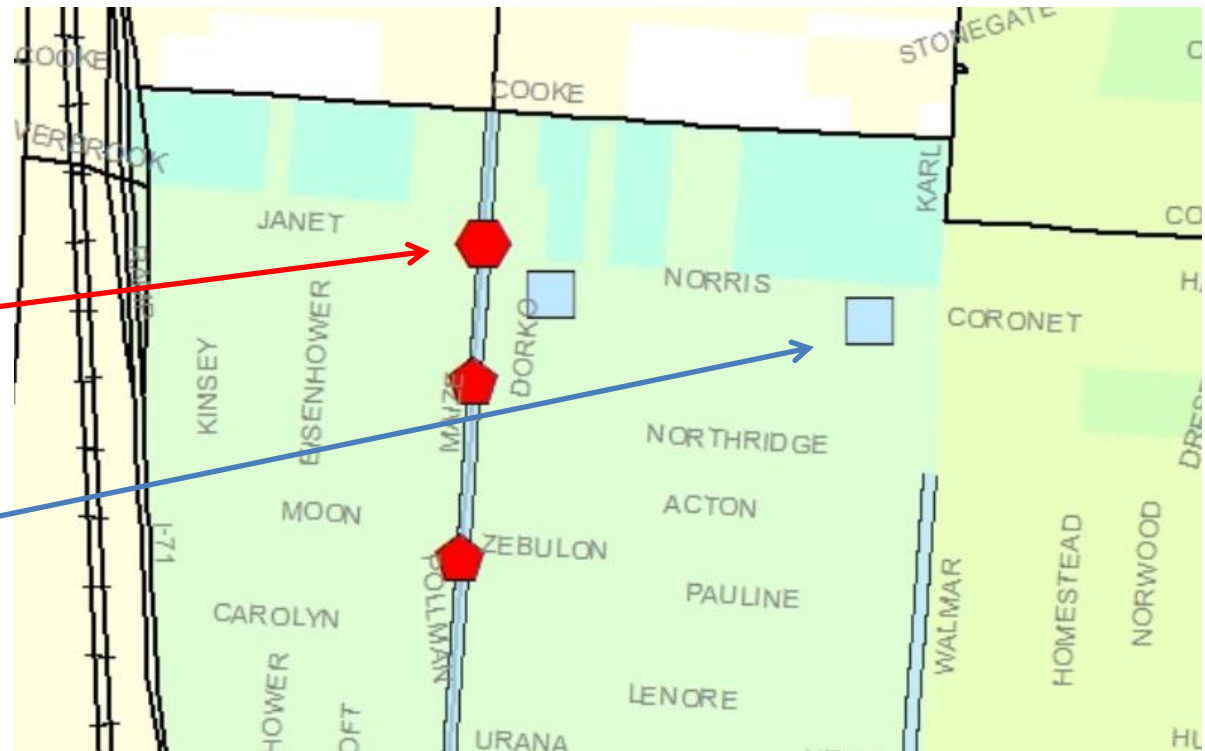
Construction Costs:

Maize Rd Chicanes:

\$51,000 (red dots)

Norris Drive Medians:

\$35,000 (blue dots)



Maize Road from Cooke Road to Norris Drive

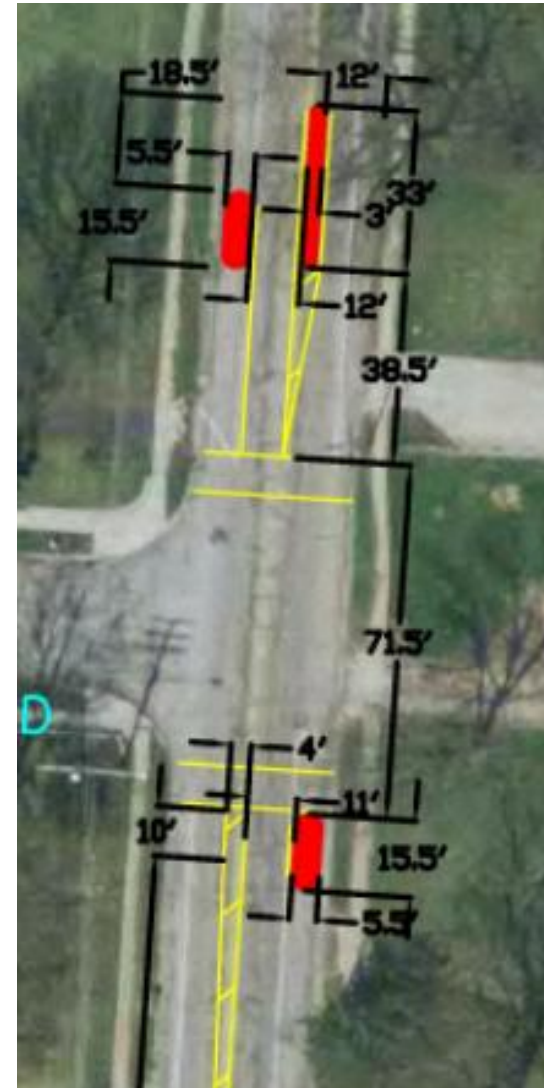
Chicane – Double Deflection

- Speeds: 9/25/2003-7/28/2009
 - NB 37 MPH AVG
 - SB 45 MPH AVG
- Installed October 2009
- Speeds: 6/15/2010
 - NB 32 MPH AVG
 - SB 32 MPH AVG



Maize Road from Northridge Rd to Acton Rd Chicane – Single Deflection

- Speeds: 10/28/2008 & 7/28/2009
 - NB 34 MPH AVG
 - SB 32 MPH AVG
- Installed October 2009
- Speeds: 6/15/2010
 - NB: 34 MPH AVG
 - SB: 34 MPH AVG



Maize/Norris

Norris Drive from Maize Rd to Karl Rd Segmented Medians / Gateway

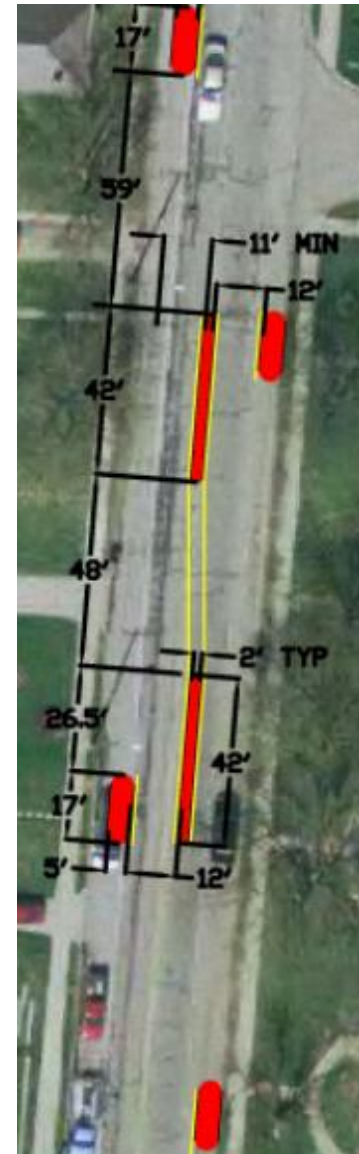
- Speeds: 10/23/2008
 - EB 29 MPH AVG
 - WB 28 MPH AVG
- Installed November 2008
- Speeds: 4/8/2009
 - EB 25 MPH AVG
 - WB 24 MPH AVG
- 24 hr volume 738 (2008) to 599 (2009) [-19%]



Results

McGuffey Rd from Delno Ave to Sandlin Ave Chicane – Double Deflection

- Similar treatment to Maize Rd double chicane
- Speeds: 7/22/2009
 - NB 34 MPH AVG
 - SB 33 MPH AVG
- Installed October 2009
- Speeds: 6/17/2010
 - NB 29 MPH AVG
 - SB 33 MPH AVG

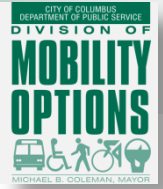


Hamilton Ave from 22nd Ave to 26th Ave Gateway Medians with Curb Extensions (Chicane, single-deflection)

- Speeds: 7/30/2009
 - NB 32 MPH AVG
 - SB 30 MPH AVG
- Installed October 2009
- Speeds: 6/1/2010
 - NB 29 MPH AVG
 - SB 27 MPH AVG



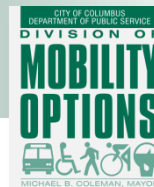
Results



- Changes in Average Speed and ADT (24 hour volume) from before to after

LOCATION	AVG SPEED		ADT	
	AFTER	% CHANGE	AFTER	% CHANGE
MAIZE RD FROM NORRIS DR TO COOKE ROAD	↓	-22.0	↑	7.0
MAIZE RD FROM NORTHRIDGE RD TO ACTON RD	↑	13.3	↑	1.1
NORRIS DR FROM MAIZE RD TO KARL RD	↓	-17.2	↓	-18.8
MCGUFFEY RD FROM DELNO AVE TO SANDLIN AVE	↓	-6.1	↑	3.3
HAMILTON AVE FROM 22ND AVE TO 26TH AVE	↓	-9.7	↔	0.0

Results



- Reported Crashes

- 09/01/2009-05/20/2010
- Includes crashes related to traffic calming features and non-intersection crashes within the segment, excludes non-correctable (i.e. DUI related crashes)
- Crashes per million vehicle miles traveled (normalized for time and volume)
- Maize between Norris/Cooke new install crash rate high then decreases slightly

LOCATION	BI-ADT	LENGTH (FT)	REPORTED CRASHES BEFORE 9/1/06-9/1/09	REPORTED CRASH RATE BEFORE MVM (9/1/06-9/1/09)	REPORTED CRASHES AFTER 11/1/09-5/20/10	REPORTED CRASH RATE AFTER MVM (11/1/09-5/20/10)	DELTA CRASH RATE (BEFORE TO AFTER)
HAMILTON AVE BETWEEN 20TH AVE AND MAYNARD AVE	5104	2460	5	1.9	1	2.1	↑
MCGUFFEY RD BETWEEN WELDON AVE AND WEBER AVE	5244	1550	6	3.6	2	6.5	↑
MAIZE RD BETWEEN NORRIS DR AND COOKE RD	7367	1300	3	1.5	4	11.0	↑
MAIZE RD BETWEEN ZEBULON AVE AND NORRIS DR	6052	1900	2	0.8	1	2.3	↑
LOCATION	BI-ADT	LENGTH (FT)	REPORTED CRASHES BEFORE 9/1/05-9/1/08	REPORTED CRASH RATE BEFORE 9/1/05-9/1/08	REPORTED CRASHES AFTER 9/1/2008-5/20/2010	REPORTED CRASH RATE AFTER MVM (9/1/08-5/20/10)	DELTA CRASH RATE (BEFORE TO AFTER)
NORRIS DRIVE BETWEEN MAIZE RD AND KARL RD	600	3200	2	5.02	0	0	↓

- Sign Knock-downs (Hit/Skip crashes)
 - Maize, McGuffey and Hamilton
 - Crash rates per million vehicle miles (MVM) mostly decrease from beginning to end of monitoring period

LOCATION	BI-ADT	LENGTH (FT)	SIGN KNOCK- DOWNS Incidents (12/29/09- 2/1/2010 34 DAYS)	SIGN KNOCK- DOWN CRASH RATE (MVM) 12/29/09- 2/1/10	SIGN KNOCK- DOWNS Incidents (2/1/2010- 5/21/2010 109 DAYS)	SIGN KNOCK- DOWN CRASH RATE (MVM) 2/1/10- 5/21/10	DELTA CRASH RATE DURING MONITO RING PERIOD
HAMILTON AVE BETWEEN 20TH AVE AND MAYNARD AVE	5104	2460	3	37.1	3	11.57	↓
MCGUFFEY RD BETWEEN WELDON AVE AND WEBER AVE	5244	1550	3	57.32	2	11.92	↓
MAIZE RD BETWEEN NORRIS DR AND COOKE RD	7367	1300	9	145.94	7	35.41	↓
MAIZE RD BETWEEN ZEBULON AVE AND NORRIS DR	6052	1900	0	0	2	8.43	↑

- Sign Knock-downs (Hit/Skip crashes)
 - monitoring period 12/29/2009-05/21/2010 (143 days)
 - City crews were dispatched 29 times to make repairs on Maize, McGuffey and Hamilton
 - Approximately 50 signs and posts replaced at cost of about \$8000 or \$280/incident
- Tire damage – incidents unknown

- Corrections:
 - TRAFFIC CALMING AHEAD signs – installed Jan. 2010
 - Norris Rd island dimensions adjusted during construction at request of resident – Fall 2008.
 - Raised pavement markers (RPMs) repair - adhesive/bonding issues on-going

Next Steps

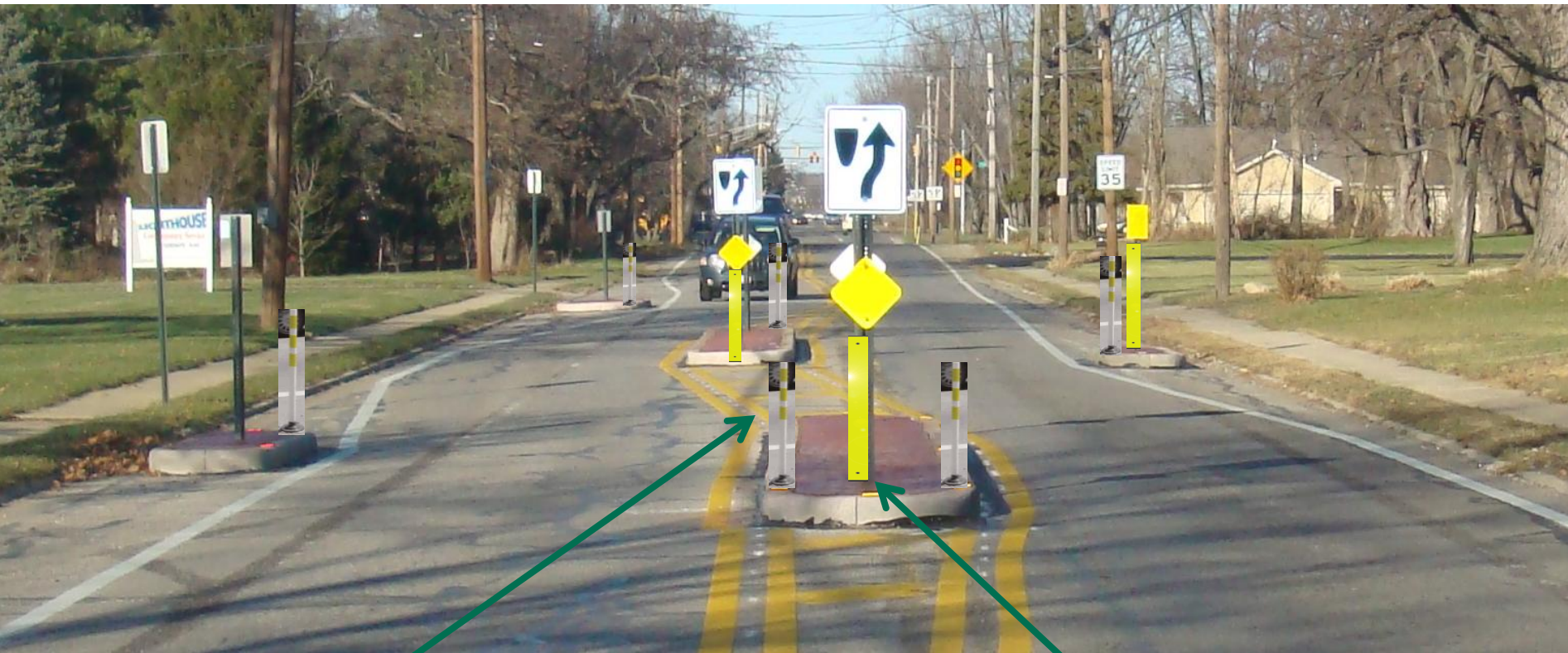
Potential Options – Maize Rd.

- I. Maintain geometrics of double chicanes to achieve goals
- II. Reduce crashes/sign knockdowns
 - a. Add reflective sheeting on sign posts
 - b. Increase sign sizes
 - c. Install more raised pavement markers/repair existing
 - d. Use post delineators for snow cover
 - e. Alignment warning signs (chicane)
 - f. Provide straighter approach to chicane



Next Steps

Potential Options



Post Delineators

Reflective Sheeting

Next Steps

Potential Options – Maize Rd.

- III. Reduce tire/vehicle damage
 - a. Change curb type on islands
 - b. Use reboundable posts for signs



Potential Options-Norris Drive

- I. Improve aesthetics of treatments
 - Reduce number of signs
 - Remove KEEP RIGHT signs on interior of curved segments
 - Due to low crash rate
 - Reduce prominence of sign
 - Lower signs on medians
- II. Improve usage for all users
 - Install SHARE THE ROAD and Pedestrian warning signs approaching medians

